

# WEST Search History

DATE: Friday, June 27, 2003

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB; PLUR=YES; OP=ADJ</i>			
L12	L9 and l6	14	L12
L11	L10 and l6	14	L11
L10	L8 and (amino acid or lysine)	16	L10
L9	L8 and (protein or polypeptide or peptide)	16	L9
L8	L7 and Escherichia	18	L8
L7	RMF or Ribosome modulation factor	204	L7
L6	L5 or l4 or l3 or l2 or l1	26972	L6
L5	((((536/23.1)!.CCLS.) )	8988	L5
L4	((((530/350)!.CCLS.) )	10719	L4
L3	((((435/252.1)!.CCLS.) )	1508	L3
L2	((((435/115 )!.CCLS. ) )	313	L2
L1	((435/69.1 )!.CCLS. )	13269	L1

END OF SEARCH HISTORY

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 18 of 18 returned.**☐ 1. Document ID: US 20030113742 A1

L8: Entry 1 of 18

File: PGPB

Jun 19, 2003

PGPUB-DOCUMENT-NUMBER: 20030113742

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030113742 A1

TITLE: Methods and compositions for the modulation of biofilm formation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw Desc
Image												

☐ 2. Document ID: US 20030105283 A1

L8: Entry 2 of 18

File: PGPB

Jun 5, 2003

PGPUB-DOCUMENT-NUMBER: 20030105283

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030105283 A1

TITLE: Antigenic protein originating in malassezia

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw Desc
Image												

☐ 3. Document ID: US 20030039632 A1

L8: Entry 3 of 18

File: PGPB

Feb 27, 2003

PGPUB-DOCUMENT-NUMBER: 20030039632

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030039632 A1

TITLE: Novel bacteriocins, transport and vector system and method of use thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw Desc
Image												

☐ 4. Document ID: US 20030031681 A1

L8: Entry 4 of 18

File: PGPB

Feb 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030031681

PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030031681 A1

TITLE: Combined growth factor-deleted and thymidine kinase-deleted vaccinia virus vector

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 5. Document ID: US 20020155556 A1

L8: Entry 5 of 18

File: PGPB

Oct 24, 2002

PGPUB-DOCUMENT-NUMBER: 20020155556  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020155556 A1

TITLE: Method of producing target substance by fermentation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 6. Document ID: US 20020110890 A1

L8: Entry 6 of 18

File: PGPB

Aug 15, 2002

PGPUB-DOCUMENT-NUMBER: 20020110890  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020110890 A1

TITLE: Use of the regulatory subunit of the cAMP dependent protein kinase (PKA) from dictyostelium for cAMP measurements

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 7. Document ID: US 20020025364 A1

L8: Entry 7 of 18

File: PGPB

Feb 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020025364  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020025364 A1

TITLE: Food disinfection using ozone

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 8. Document ID: US 6573059 B1

L8: Entry 8 of 18

File: USPT

Jun 3, 2003

US-PAT-NO: 6573059

DOCUMENT-IDENTIFIER: US 6573059 B1

TITLE: Use of the regulatory subunit of the camp dependent protein kinase (PKA) from dictyostelium for camp measurements

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 9. Document ID: US 6551795 B1

L8: Entry 9 of 18

File: USPT

Apr 22, 2003

US-PAT-NO: 6551795

DOCUMENT-IDENTIFIER: US 6551795 B1

TITLE: Nucleic acid and amino acid sequences relating to pseudomonas aeruginosa for diagnostics and therapeutics

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 10. Document ID: US 6528289 B1

L8: Entry 10 of 18

File: USPT

Mar 4, 2003

US-PAT-NO: 6528289

DOCUMENT-IDENTIFIER: US 6528289 B1

TITLE: Nucleotide sequence of the Haemophilus influenzae Rd genome, fragments thereof, and uses thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 11. Document ID: US 6485769 B2

L8: Entry 11 of 18

File: USPT

Nov 26, 2002

US-PAT-NO: 6485769

DOCUMENT-IDENTIFIER: US 6485769 B2

TITLE: Food disinfection using ozone

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 12. Document ID: US 6482607 B1

L8: Entry 12 of 18

File: USPT

Nov 19, 2002

US-PAT-NO: 6482607

DOCUMENT-IDENTIFIER: US 6482607 B1

TITLE: Expression vector for use in a one-step purification protocol

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 13. Document ID: US 6432407 B1

L8: Entry 13 of 18

File: USPT

Aug 13, 2002

US-PAT-NO: 6432407

DOCUMENT-IDENTIFIER: US 6432407 B1

TITLE: Antigenic protein originating in malassezia

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 14. Document ID: US 6403082 B1

L8: Entry 14 of 18

File: USPT

Jun 11, 2002

US-PAT-NO: 6403082

DOCUMENT-IDENTIFIER: US 6403082 B1

TITLE: Bacteriocins, transport and vector system and method of use thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 15. Document ID: US 6355450 B1

L8: Entry 15 of 18

File: USPT

Mar 12, 2002

US-PAT-NO: 6355450

DOCUMENT-IDENTIFIER: US 6355450 B1

TITLE: Computer readable genomic sequence of Haemophilus influenzae Rd, fragments thereof, and uses thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KWIC	Draw Desc
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☐ 16. Document ID: US 6153408 A

L8: Entry 16 of 18

File: USPT

Nov 28, 2000

US-PAT-NO: 6153408

DOCUMENT-IDENTIFIER: US 6153408 A

TITLE: Altered major histocompatibility complex (MHC) determinant and methods of using the determinant

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KM/C	Draw Desc
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☐ 17. Document ID: US 5741675 A

L8: Entry 17 of 18

File: USPT

Apr 21, 1998

US-PAT-NO: 5741675

DOCUMENT-IDENTIFIER: US 5741675 A

TITLE: Regulatory nucleic acid sequences and uses in actinomycetes

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KM/C	Draw Desc
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☐ 18. Document ID: US 5736358 A

L8: Entry 18 of 18

File: USPT

Apr 7, 1998

US-PAT-NO: 5736358

DOCUMENT-IDENTIFIER: US 5736358 A

TITLE: Dictyostelid expression vector and method for expressing a desired protein

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Image									

KM/C	Draw Desc
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Generate Collection

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Terms	Documents
L7 and Escherichia	18

Display Format:

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Change Format

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(FILE 'HOME' ENTERED AT 13:03:01 ON 27 JUN 2003)

FILE 'HCAPLUS' ENTERED AT 13:03:08 ON 27 JUN 2003

L1	363 S RMF OR RIBOSOME MODULATION FACTOR
L2	25 S L1 (L) ESCHERICHIA
L3	17 S L2 AND PD<20001222
L4	15 S L3 AND PROTEIN
L5	1 S L3 AND LYSINE
L6	1 S L3 AND PREP/RL

=> d iall

L6 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:317577 HCAPLUS

DOCUMENT NUMBER: 125:8555

TITLE: Genetic manipulation of stationary-phase genes to enhance recombinant protein production in *Escherichia coli*

AUTHOR(S): Chou, Chih-Hsiung; Bennett, George N.; San, Ka-Yiu

CORPORATE SOURCE: Dep. Chem. Eng., Dep. Biochem., Cell Biol. Inst. Biosci., Bioeng., Rice Univ., Houston, TX, 77251-1892, USA

SOURCE: Biotechnology and Bioengineering (1996), 50(6), 636-642

CODEN: BIBIAU; ISSN: 0006-3592

PUBLISHER: Wiley

DOCUMENT TYPE: Journal

LANGUAGE: English

CLASSIFICATION: 16-4 (Fermentation and Bioindustrial Chemistry)

ABSTRACT:

Genetic manipulation of the host strain, by which cell physiol. could be modulated, was exploited to enhance recombinant protein prodn. in \*\*\**Escherichia coli*. The effects of an inactivated stationary-phase gene (*rmf* or *katF*) on recombinant protein prodn. in strains with two different expression systems (the pH-inducible and the lac promoters) were investigated. An improvement of recombinant protein prodn. in the *katF* mutant at low growth rates was obsd. for both expression systems. A 4-fold and a 30% increase in the volumetric recombinant protein activity were obsd. for the pH-inducible and the lac promoter system, resp. The effect of the *rmf* mutation, on the other hand, depends on the expression system. A 2-fold increase in the volumetric recombinant protein activity was found for the pH-inducible promoter system, but there was no improvement for the lac promoter system. Improvement in culture performance for slow-growing cultures may have an impact on the design strategy of the host/vector system used in fed-batch cultures, where the specific growth rate is usually slow. The information may also be useful for developing optimal host/vector gene expression systems for recombinant protein prodn.

SUPPL. TERM: *Escherichia* recombinant protein prodn genetic engineering

INDEX TERM: *Escherichia coli*

Genetic engineering

(genetic manipulation of stationary-phase genes to enhance recombinant protein prodn. in *Escherichia coli*)

INDEX TERM: Proteins, preparation

ROLE: BMF (Bioindustrial manufacture); BIOL (Biological study); **PREP (Preparation)**

(genetic manipulation of stationary-phase genes to enhance recombinant protein prodn. in *Escherichia coli*)

INDEX TERM: Gene, microbial

ROLE: BSU (Biological study, unclassified); BIOL (Biological study)

(*katF*, genetic manipulation of stationary-phase genes to enhance recombinant protein prodn. in *Escherichia coli*)

INDEX TERM: Gene, microbial

ROLE: BSU (Biological study, unclassified); BIOL (Biological study)

(*rmf*, genetic manipulation of stationary-phase genes to enhance recombinant protein prodn. in *Escherichia coli*)



L3 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:150813 HCAPLUS

DOCUMENT NUMBER: 134:322134

TITLE: Two proteins, YfiA and YhbH, associated with resting ribosomes in stationary phase *Escherichia coli*

AUTHOR(S): Maki, Yasushi; Yoshida, Hideji; Wada, Akira

CORPORATE SOURCE: Japan Science and Technology Corporation, Saitama, 332-0012, Japan

SOURCE: Genes to Cells (2000), 5(12), 965-974

CODEN: GECEFL; ISSN: 1356-9597

PUBLISHER: Blackwell Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Background: Ribosomes in *Escherichia coli* change their compn.

and conformation in the stationary phase. **Ribosome**

**modulation factor (RMF)** and ribosomal protein

S22 are known to be assocd. with stationary phase ribosomes. **RMF**

assocn. causes the loss of translational activity and the dimerization of 70S ribosomes into 100S ribosomes, which may increase cell survival in the stationary phase. Results: Two weakly acidic proteins having related amino acid sequences were found to be assocd. with *E. coli* ribosomes in the stationary phase. These proteins are the products of ORFs named yfiA and yhbH. The sum of the copy nos. of their product proteins, YfiA and YhbH, in the ribosomal particles was low in the log phase, but increased to nearly one in the stationary phase. YfiA was found in the 70S ribosomal fraction rather than the 100S. On the other hand, YhbH was detected exclusively in the 100S ribosomal fraction. When the stationary phase cells were transferred to fresh medium, YfiA and YhbH were found in the 70S ribosomal fraction, but not in the polysome fraction.

Conclusions: Two proteins, YfiA and YhbH, assocd. with *E. coli* ribosomes were found to accumulate in the stationary phase, leading to the formation of several types of ribosomes. They are not likely to have roles in the elongation step of the translation in log phase cells, but are likely to be involved in the stabilization and preservation of ribosomes in the stationary phase, which might be necessary for cell survival.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:633135 HCAPLUS

DOCUMENT NUMBER: 133:319355

TITLE: Two types of localization of the DNA-binding proteins within the *Escherichia coli* nucleoid

AUTHOR(S): Azam, Talukder Ali; Hiraga, Sota; Ishihama, Akira

CORPORATE SOURCE: Department of Molecular Genetics, National Institute of Genetics, Shizuoka, 411-8540, Japan

SOURCE: Genes to Cells (2000), 5(8), 613-626

CODEN: GECEFL; ISSN: 1356-9597

PUBLISHER: Blackwell Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The genome DNA of *Escherichia coli* is folded into the

nucleosome-like structure, often called a nucleoid, by the binding of several DNA-binding proteins. The authors previously detd. the

specificity and affinity of DNA-binding for 12 species of the *E. coli* DNA-binding protein, and their intracellular concns. at various growth phases. The intracellular localization of these proteins in *E. coli* could be predicted from these data, but no attempt has been made thus far to directly observe the intracellular distribution of the DNA-binding proteins. The intracellular localization in *Escherichia coli* of

10 species of the nucleoid-assocd. protein, three components of the transcription app., and three components of the translation machinery was investigated by indirect immuno-fluorescence microscopy. The DNA-binding proteins could be classified into two groups. The group-I proteins, including the major nucleoid-structural proteins, H-NS, HU, IHF, StpA and Dps, are distributed uniformly within the entire nucleoid. In contrast, the group-II proteins, which are presumed to possess regulatory activities of DNA functions accumulate at specific loci within the nucleoid, forming 2 (SeqA), 3-4 (CbpA and CbpB) and 6-10 (Fis and IciA) immuno-stained dots.

Each immuno-stained dot may represent either the assocn. of a hundred to one thousand mols. of each DNA-binding protein at a specific locus of the genome DNA or the assembly of protein-assocd. DNA segments from different domains of the folded genome. Both the RNA polymerase core enzyme and the .sigma.70 subunit are mainly assocd. with the nucleoid, but the anti-.sigma.70 factor (Rsd) appears to be accumulated at the boundary between the nucleoid and the cytosol in the stationary-phase cells. Here, the authors show that the majority of Hfq is present in cytoplasm together with ribosomal proteins L7/L12 and **RMF**. Conclusion: The DNA-binding proteins of E. coli could be classified into two groups. One group proteins was distributed uniformly within the nucleoid, but the other group of proteins showed an irregular distribution, forming immuno-stained spots or clumps.

REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:296932 HCAPLUS

DOCUMENT NUMBER: 133:55777

TITLE: Growth phase-coupled changes of the ribosome profile in natural isolates and laboratory strains of *Escherichia coli*

AUTHOR(S): Wada, Akira; Mikkola, Riitta; Kurland, Charles G.; Ishihama, Akira

CORPORATE SOURCE: Department of Physics, Osaka Medical College, Osaka, 569-0084, Japan

SOURCE: Journal of Bacteriology (2000), 182(10), 2893-2899

CODEN: JOBAAAY; ISSN: 0021-9193

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The growth phase-dependent change in sucrose d. gradient centrifugation patterns of ribosomes was analyzed for both lab. strains of *Escherichia coli* and natural isolates from the ECOR collection. All of the natural isolates examd. formed 100S ribosome dimers in the stationary phase, and **ribosome modulation factor (RMF)** was assocd. with the ribosome dimers in the ECOR strains as in the lab. strain W3110. The ribosome profile (70S monomers vs. 100S dimers) follows a defined pattern over time during lengthy culture in both the lab. strains and natural isolates. There are four discrete stages: (i) formation of 100S dimers in the early stationary phase; (ii) transient decrease in the dimer level; (iii) return of dimers to the max. level; and (iv) dissocn. of 100S dimers into 70S ribosomes, which are quickly degraded into subassemblies. The total time for this cycle of ribosome profile change, however, varied from strain to strain, resulting in apparent differences in the ribosome profiles when obsd. at a fixed time point. A correlation was noted in all strains between the decay of 100S ribosomes and the subsequent loss of cell viability. Two types of E. coli mutants defective in ribosome dimerization were identified, both of which were unable to survive for a prolonged period in stationary phase. The W3110 mutant, with a disrupted **rmf** gene, has a defect in ribosome dimerization because of lack of **RMF**, while strain Q13 is unable to form ribosome dimers due to a ribosomal defect in binding **RMF**.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:156757 HCAPLUS

DOCUMENT NUMBER: 132:275703

TITLE: Highly hydrophilic proteins in prokaryotes and eukaryotes are common during conditions of water deficit

AUTHOR(S): Garay-Arroyo, Adriana; Colmenero-Flores, Jose M.; Garcarrubio, Alejandro; Covarrubias, Alejandra A.

CORPORATE SOURCE: Departamentos de Biologia Molecular de Plantas, Instituto de Biotecnologia, Universidad Nacional Autonoma de Mexico, Morelos, 62250, Mex.

SOURCE: Journal of Biological Chemistry (2000),  
275(8), 5668-5674  
CODEN: JBCHA3; ISSN: 0021-9258  
PUBLISHER: American Society for Biochemistry and Molecular  
Biology  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The late embryogenesis abundant (LEA) proteins are plant proteins that are synthesized at the onset of desiccation in maturing seeds and in vegetative organs exposed to water deficit. Here, we show that most LEA proteins are comprised in a more widespread group, which we call "hydrophilins.". The defining characteristics of hydrophilins are high glycine content (>6%) and a high hydrophilicity index (>1.0). By data base searching, we show that this criterion selectively differentiates most known LEA proteins as well as addnl. proteins from different taxons. We found that within the genomes of Escherichia coli and Saccharomyces cerevisiae, only 5 and 12 proteins, resp., meet our criterion. Despite their deceptively loose definition, hydrophilins usually represent <0.2% of the proteins of a genome. Addnl., we demonstrate that the criterion that defines hydrophilins seems to be an excellent predictor of responsiveness to hyperosmosis since most of the genes encoding these proteins in E. coli and S. cerevisiae are induced by osmotic stress. Evidence for the participation of one of the E. coli hydrophilins in the adaptive response to hyperosmotic conditions is presented. Apparently, hydrophilins represent analogous adaptations to a common problem in such diverse taxons as prokaryotes and eukaryotes.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:697463 HCAPLUS  
DOCUMENT NUMBER: 132:61411  
TITLE: Involvement of ppGpp, Ribosome Modulation Factor, and Stationary Phase-Specific Sigma Factor .sigma.S in the Decrease in Cell Viability Caused by Spermidine  
AUTHOR(S): Apirakaramwong, Auayporn; Kashiwagi, Keiko; Raj, V. Samuel; Sakata, Kaori; Kakinuma, Yoshimi; Ishihama, Akira; Igarashi, Kazuei  
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Chiba University, Inage-ku, Chiba, 263-8522, Japan  
SOURCE: Biochemical and Biophysical Research Communications (1999), 264(3), 643-647  
CODEN: BBRC A9; ISSN: 0006-291X  
PUBLISHER: Academic Press  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Accumulation of spermidine in *Escherichia coli* causes a decrease in cell viability at the late stationary phase of cell growth. The mechanism underlying this effect has been studied. Spermidine accumulation caused an increase in the level of ppGpp and a decrease in **ribosome modulation factor (RMF)** and stationary phase-specific sigma factor .sigma.S, both of which are believed to be involved in cell viability. Transformation of E. coli with the gene for stringent factor, which synthesizes ppGpp, also caused a significant decrease in the levels of **RMF** and .sigma.S factor and a decrease in cell viability. The results strongly suggest that the accumulation of ppGpp is also involved in the decrease in cell viability and that the .sigma.S factor assists the function of **RMF** in cell viability. (c) 1999 Academic Press.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:363151 HCAPLUS  
DOCUMENT NUMBER: 131:141772  
TITLE: Modulation of the nucleoid, the transcription apparatus, and the translation machinery in bacteria for stationary phase survival  
AUTHOR(S): Ishihama, Akira

CORPORATE SOURCE: Department of Molecular Genetics, National Institute  
of Genetics, Shizuoka, 411-8540, Japan  
SOURCE: Genes to Cells (1999), 4(3), 135-143  
CODEN: GECEFL; ISSN: 1356-9597  
PUBLISHER: Blackwell Science Ltd.  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 70 refs. Upon sensing an impending satn. level of their population d., *Escherichia coli* cells enter into the stationary phase. We have identified structural and functional modulations of the nucleoid, the transcription app. and the translation machinery occurring during the transition from exponential growth to stationary phase. The major DNA-binding proteins, Fis, HU and Hfq, in the exponential-phase nucleoid are replaced by a single stationary-phase protein Dps, thereby compacting the nucleoid and ultimately leading to silencing of the DNA functions. The transcription app. is modified by replacing the major promoter recognition subunit, .sigma.70, with .sigma.s. A stationary-phase protein, Rsd (Regulator of Sigma D), with the binding activity of .sigma.70 is involved in the efficient replacement of .sigma. and/or the storage of unused .sigma.70. Changes in cytoplasmic compn. also differentially influence the activity of E.sigma.70 and E.sigma.s holoenzymes. Together, these effects may result in the preferential transcription of stationary-phase specific genes. The translation machinery is also modulated in stationary phase, by the formation of translationally incompetent 100S ribosomes. A small stationary-phase protein, **RMF (Ribosome Modulation Factor)**, is involved in the dimerization of 70S ribosome monomers.  
REFERENCE COUNT: 70 THERE ARE 70 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:699540 HCAPLUS  
DOCUMENT NUMBER: 130:64778  
TITLE: Enhancement of cell death due to decrease in Mg2+ uptake by OmpC (cation-selective porin) deficiency in ribosome modulation factor-deficient mutant  
AUTHOR(S): Apirakaramwong, Auayporn; Fukuchi, Jun-Ichi; Kashiwagi, Keiko; Kakinuma, Yoshimi; Ito, Emiko; Ishihama, Akira; Igarashi, Kazuei  
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Chiba University, Chiba, 263-8522, Japan  
SOURCE: Biochemical and Biophysical Research Communications (1998), 251(2), 482-487  
CODEN: BBRC9; ISSN: 0006-291X  
PUBLISHER: Academic Press  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB **Ribosome modulation factor (RMF)** is involved in stabilization of ribosomes during the transition from exponential growth to the stationary growth phase in *Escherichia coli*. A deficiency of **RMF** is known to reduce cell viability. Overaccumulation of spermidine also leads to a decrease in cell viability and to a decrease in the synthesis of **RMF** and of the cation-selective porin OmpC. Thus, a decrease in **RMF** levels may be involved in the decreased cell viability caused by excess spermidine. Because spermidine also influences the expression of OmpC, we examd. whether OmpC deficiency enhances the cell death caused by **RMF** deficiency. The ompC mutant by itself did not affect protein synthesis or cell viability, but the double **rmf** ompC mutant produced a much larger decrease in protein synthesis and cell viability than did the single **rmf** mutant. There was also a decrease in the amt. of ribosomes and in the Mg2+ content in the double **rmf** ompC mutant, and cell viability could be partially restored by the addn. of Mg2+ to the growth medium. **RMF** deficiency was found to inhibit the synthesis of another cation-selective porin OmpF. Thus, the double **rmf** ompC mutant is deficient in both OmpC and OmpF, which probably accounts for the pronounced decrease in Mg2+ uptake in this mutant. The results indicate that both **RMF** and Mg2+, acting through stabilization of ribosomes, are important for cell viability at the

stationary growth phase. (c) 1998 Academic Press.  
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:409208 HCAPLUS  
DOCUMENT NUMBER: 129:119992  
TITLE: Growth phase coupled modulation of Escherichia coli  
ribosomes  
AUTHOR(S): Wada, Akira  
CORPORATE SOURCE: Department of Physics, Osaka Medical College, Osaka,  
569-0084, Japan  
SOURCE: Genes to Cells (1998), 3(4), 203-208  
CODEN: GECEFL; ISSN: 1356-9597  
PUBLISHER: Blackwell Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Ribosomal modulation factor (RMF), a small basic protein,  
expresses transcriptionally in the stationary phase of Escherichia  
coli cells and binds to 50S ribosomal subunits. The RMF bound  
70S ribosomes dimerize to form 100S particles that have no translational  
activity. In transferring the stationary cells to a fresh medium, the  
100S particles release the RMF and dissociate to active 70S. The  
interconversion of ribosomes between active 70S and inactive 100S by  
RMF is a cellular mechanism controlling translation.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:585491 HCAPLUS  
DOCUMENT NUMBER: 128:44390  
TITLE: Complete genome sequence of Escherichia coli K-12  
AUTHOR(S): Blattner, Frederick R.; Plunkett, Guy, III; Bloch,  
Craig A.; Perna, Nicole T.; Burland, Valerie; Riley,  
Monica; Collado-Vides, Julio; Glasner, Jeremy D.;  
Rode, Christopher K.; Mayhew, George F.; Gregor,  
Jason; Davis, Nelson Wayne; Kirkpatrick, Heather A.;  
Goeden, Michael A.; Rose, Debra J.; Mau, Bob; Shao,  
Ying  
CORPORATE SOURCE: Lab. Genetics, Univ. Wisconsin-Madison, Madison, WI,  
53706, USA  
SOURCE: Science (Washington, D. C.) (1997), 277(5331),  
1453-1462  
CODEN: SCIEAS; ISSN: 0036-8075  
PUBLISHER: American Association for the Advancement of Science  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The 4,639,221-base pair sequence of Escherichia coli K-12 is presented.  
Of 4288 protein-coding genes annotated, 38 percent have no attributed  
function. Comparison with five other sequenced microbes reveals  
ubiquitous as well as narrowly distributed gene families; many families of  
similar genes within E. coli are also evident. The largest family of  
paralogous proteins contains 80 ABC transporters. The genome as a whole  
is strikingly organized with respect to the local direction of  
replication; guanines, oligonucleotides possibly related to replication  
and recombination, and most genes are so oriented. The genome also  
contains insertion sequence (IS) elements, phage remnants, and many other  
patches of unusual composition indicating genome plasticity through horizontal  
transfer.

L3 ANSWER 10 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:533270 HCAPLUS  
DOCUMENT NUMBER: 127:215907  
TITLE: Transcription factor sigma.70 recognition of promoter  
of ribosome modulation  
factor gene of Escherichia coli  
AUTHOR(S): Ding, Qingquan; Akira Ishihama  
CORPORATE SOURCE: Wuhan Inst. Virol., Acad. Sin., Wuhan, 430071, Peop.  
Rep. China

SOURCE: Weishengwu Xuebao (1997), 37(1), 21-25  
CODEN: WSHPA8; ISSN: 0001-6209

PUBLISHER: Kexue  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

AB The truncated DNA template carrying **ribosome modulation factor (rmf)** gene promoter was transcribed by **Escherichia coli** RNA polymerase holoenzyme (E.sigma.) reconstituted with core enzyme (.alpha.2.beta..beta.') and .sigma.70 or .sigma.38 in vitro. The initiation site of the transcription of **rmf** was confirmed with restriction endonucleases. The **rmf** promoters were recognized by E.sigma.70 but not by E.sigma.38. The suitable temp. for in vitro transcription was 37.degree., NaCl concn. was 50 mmol/L.

L3 ANSWER 11 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:95016 HCAPLUS

DOCUMENT NUMBER: 126:129142

TITLE: Studies on modulation and control of .sigma.-38 and **rmf** for the expression of some genes

AUTHOR(S): Ding, Qingquan; Shi, Bingming

CORPORATE SOURCE: Wuhan Inst. Virol., Chinese Acad. Scis., Wuhan, 430071, Peop. Rep. China

SOURCE: Weishengwu Xuebao (1996), 36(5), 344-350  
CODEN: WSHPA8; ISSN: 0001-6209

PUBLISHER: Kexue  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

AB **Escherichia coli** wild type strain and **rpoS** and **rmf** mutant strains were cultured on the rich medium LB and limited component medium and the changes of the product of serial proteins was quantified with Western blot. The **rpoS** gene product .sigma.38 had no effect on the prodn. of **rpoA**, **rpoB**, **rpoC**, **groE** and **tu** gene, but inhibited **crp** and promoted **rmf** expression. The **ribosome modulation factor rmf** was inhibitive on **crp** and **rpoS**, and promotive on transcription of **rpoA**, **rpoD**, **groEl**, **rho**, **ompA** and **tufA** in LB condition but not obvious in EP condition.

L3 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:317577 HCAPLUS

DOCUMENT NUMBER: 125:8555

TITLE: Genetic manipulation of stationary-phase genes to enhance recombinant protein production in **Escherichia coli**

AUTHOR(S): Chou, Chih-Hsiung; Bennett, George N.; San, Ka-Yiu

CORPORATE SOURCE: Dep. Chem. Eng., Dep. Biochem., Cell Biol. Inst. Biosci., Bioeng., Rice Univ., Houston, TX, 77251-1892, USA

SOURCE: Biotechnology and Bioengineering (1996), 50(6), 636-642  
CODEN: BIBIAU; ISSN: 0006-3592

PUBLISHER: Wiley  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Genetic manipulation of the host strain, by which cell physiol. could be modulated, was exploited to enhance recombinant protein prodn. in **Escherichia coli**. The effects of an inactivated stationary-phase gene (**rmf** or **katF**) on recombinant protein prodn. in strains with two different expression systems (the pH-inducible and the lac promoters) were investigated. An improvement of recombinant protein prodn. in the **katF** mutant at low growth rates was obsd. for both expression systems. A 4-fold and a 30% increase in the volumetric recombinant protein activity were obsd. for the pH-inducible and the lac promoter system, resp. The effect of the **rmf** mutation, on the other hand, depends on the expression system. A 2-fold increase in the volumetric recombinant protein activity was found for the pH-inducible promoter system, but there was no improvement for the lac promoter system. Improvement in culture performance for slow-growing cultures may have an impact on the design strategy of the host/vector system used in fed-batch cultures, where the

specific growth rate is usually slow. The information may also be useful for developing optimal host/vector gene expression systems for recombinant protein prodn.

L3 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:809228 HCAPLUS

DOCUMENT NUMBER: 123:193231

TITLE: Ribosome modulation factor

: stationary growth phase-specific inhibitor of ribosome functions from *Escherichia coli*

AUTHOR(S): Wada, Akira; Igarashi, Kazuei; Yoshimura, Shoko; Aimoto, Saburo; Ishihama, Akira

CORPORATE SOURCE: Dep. Phys., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Biochemical and Biophysical Research Communications (1995), 214(2), 410-17

CODEN: BBRCA9; ISSN: 0006-291X

PUBLISHER: Academic

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ribosome modulation factor (RMF)

is an *Escherichia coli* protein assocd. with 100S ribosome dimers, which are formed at stationary growth phase or in slowly growing cells. RMF either purified from stationary-phase ribosomes or synthesized by a chem. method was examd. for its functions. By adding either natural or synthetic RMF to 70S ribosomes prepd. from both exponentially growing and stationary phase cells, 100S ribosome dimers were generated in a concn.-dependent manner. Protein synthesis in vitro was inhibited concomitantly with the formation of 100S ribosomes. The binding of aminoacyl-tRNA to ribosomes was inhibited in parallel. Apparently, RMF is a stationary phase-specific inhibitor of ribosome functions and 100S dimers are stored forms of ribosomes.

L3 ANSWER 14 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:747069 HCAPLUS

DOCUMENT NUMBER: 123:138441

TITLE: Decrease in cell viability due to the accumulation of spermidine in spermidine acetyltransferase-deficient mutant of *Escherichia coli*

AUTHOR(S): Fukuchi, Jun-ichi; Kashiwagi, Keiko; Yamagishi, Masahiro; Ishihama, Akira; Igarashi, Kazuei

CORPORATE SOURCE: Fac. Pharmaceutical Sci., Chiba Univ., Chiba, 263, Japan

SOURCE: Journal of Biological Chemistry (1995), 270(32), 18831-5

CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Physiol. functions of spermidine acetyltransferase in *E. coli* were studied using the spermidine acetyltransferase (speG) gene-deficient mutant CAG2242 and the cloned speG gene. The growth of *E. coli* CAG2242 in the defined M9 medium was normal in the presence and absence of 0.5 mM spermidine. However, cell viability of *E. coli* CAG2242 at 48 h after the onset of growth decreased greatly by the addn. of 0.5 mM spermidine. The amt. of spermidine accumulated in the cells was .apprx.3-fold that in the cells grown in the absence of spermidine. Transformation of the cloned speG gene to *E. coli* CAG2242 recovered the cell viability. Decreased cell viability of *E. coli* CAG2242 was obsd. even when 0.5 mM spermidine was added at 24 h after the onset of growth. Accumulated spermidine functioned at the late stationary phase of growth. The accumulation of spermidine caused a decrease in protein synthesis but not in DNA and RNA synthesis at 28 h after the onset of growth. The synthesis of several kinds of proteins was particularly inhibited. They included ribosome modulation factor and OmpC protein. Since the ribosome modulation factor is essential for cell viability at the stationary phase of growth, the decrease in the protein was thought to be one of the reasons for the decrease in cell viability. The decrease in the ribosome modulation factor mainly occurred at the translational level.

L3 ANSWER 15 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:454968 HCAPLUS

DOCUMENT NUMBER: 121:54968

TITLE: Mutations in accessory DNA replicating functions alter the relative mutation frequency of herpes simplex virus type 1 strains in cultured murine cells

AUTHOR(S): Pyles, Richard B.; Thompson, Richard L.

CORPORATE SOURCE: Coll. Med., Univ. Cincinnati, Cincinnati, OH, 45267-0524, USA

SOURCE: Journal of Virology (1994), 68(7), 4514-24  
CODEN: JOVIAM; ISSN: 0022-538X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The contribution of the herpes simplex virus type 1 (HSV-1)-encoded uracil DNA glycosylase (ZUNG), thymidine kinase (TK), and the dUTPase to the relative mutant frequency (RMF) of the virus in cultured murine cells was examd. A panel of HSV-1 mutants that lacked singly or doubly the UNG, TK, or dUTPase activity were generated by disruption of the enzyme coding regions with the *Escherichia coli* .beta.-galactosidase (.beta.-gal) gene in strain 17syn+. To establish a baseline RMF of strain 17syn+, the .beta.-gal gene was inserted into the UL3 locus. In all of the viruses, the .beta.-gal insert served as a phenotypic marker of RMF. A mutant plaque was identified by the lack of .beta.-gal activity and, in selected cases, pos. in situ hybridization for .beta.-gal sequences. Replication kinetics in NIH 3T3 cells demonstrated that all of the mutants replicated efficiently, generating stocks with equiv. titers. Two independently generated UL3-.beta.-gal viruses were examd. and established a baseline RMF of .apprx.0.5% in both NIH3T3 and LM TK- cells. Loss of dUTPase activity resulted in viruses with fivefold-increased RMFs, indicating that the HSV-1 dUTPase has an antimutator function. The RMF obsd. for the tk- viruses was reduced as much as 40-fold (RMF of 0.02%), suggesting that the viral TK is a mutator activity. The RMF of two independent UNG- viruses showed no significant difference from the baseline RMF in limited passage; however, following successive passage, the data suggested that UNG activity serves as an antimutator. These results have implications for the natural history of HZSV and the development of antiviral therapies.

L3 ANSWER 16 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:206606 HCAPLUS

DOCUMENT NUMBER: 118:206606

TITLE: Regulation of the *Escherichia coli* **rmf** gene encoding the **ribosome modulation factor**: Growth phase- and growth rate-dependent control

AUTHOR(S): Yamagishi, Masahiro; Matsushima, Hiroshi; Wada, Akira; Sakagami, Masayuki; Fujita, Nobuyuki; Ishihama, Akira

CORPORATE SOURCE: Dep. Mol. Genet., Natl. Inst. Genet., Shizouka, 411, Japan

SOURCE: EMBO Journal (1993), 12(2), 625-30  
CODEN: EMJODG; ISSN: 0261-4189

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ribosome modulation factor (RMF) is a protein specifically assocd. with 100S ribosome dimers which starts to accumulate in *E. coli* cells upon growth transition from exponential to stationary phase. The structural gene, **rmf**, encoding the 55 amino acid residue RMF protein has been cloned from the 21.8 min region of the *E. coli* genome and sequenced. While **rmf** was silent in rapidly growing exponential phase cells, a high level of transcription took place concomitantly with the growth transition to stationary phase. Under slow growth conditions, **rmf** was expressed even in exponential phase and there was an inverse relationship between the expression of **rmf** and the cell growth rate. Thus, the expression profile of **rmf** is contrary to those of genes for ribosomal components and ribosome-assocd. proteins constituting the translational app. The **katF** gene product, a stationary phase-specific .sigma. factor, was not required for the expression of **rmf**. Disruption of **rmf** resulted in loss of ribosome



dimers and redn. of cell viability during stationary phase.

L3 ANSWER 17 OF 17 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:403039 HCAPLUS

DOCUMENT NUMBER: 113:3039

TITLE: Structure and probable genetic location of a "  
**ribosome modulation factor**  
" associated with 100S ribosomes in stationary-phase  
**Escherichia coli** cells

AUTHOR(S): Wada, Akira; Yamazaki, Yukiko; Fujita, Nobuyuki;  
Ishihama, Akira

CORPORATE SOURCE: Fac. Sci., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Proceedings of the National Academy of Sciences of the  
United States of America (1990), 87(7),  
2657-61

CODEN: PNASA6; ISSN: 0027-8424

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The decrease in overall translation activity occurring concomitantly with the transition from the exponential growth phase to the stationary phase of *E. coli* cells was accompanied by the appearance of 100S ribosomes (dimers of 70S ribosome monomers). Anal. of ribosomal proteins by the radical-free and highly reducing method of 2-dimensional gel electrophoresis indicated that a protein, designated protein E, was exclusively assocd. with 100S ribosomes. The results suggest that protein E is a ribosome modulation factor (RMF), which assoc. with 70S ribosomes and converts them to a dimeric form. A homol. search of the partial amino acid sequence of RMF using the DNA sequence data bases revealed that the *rmf* gene, which encodes RMF, is located next to the *fabA* gene at 21.8 min on the *E. coli* chromosome.

=> s rmf and escherichia  
      •          25 RMF  
      53245 ESCHERICHIA  
L5          6 RMF AND ESCHERICHIA

=> d 1-6

L5  ANSWER 1 OF 6  REGISTRY  COPYRIGHT 2003 ACS  
RN  318229-00-4  REGISTRY  
CN  DNA (Escherichia coli O157:H7 strain EDL933 gene ycbY plus gene uup  
     plus gene pqiA plus gene pqiB plus gene ymbA plus gene rmf plus gene fabA  
     plus gene Z1305) (9CI)  (CA INDEX NAME)

OTHER NAMES:

CN  GenBank AE005174 (Secondary GenBank Accession Number)  
CN  GenBank AE005285  
FS  NUCLEIC ACID SEQUENCE  
MF  Unspecified  
CI  MAN  
SR  GenBank  
LC  STN Files:  CA, CAPLUS, GENBANK, TOXCENTER

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
      2 REFERENCES IN FILE CA (1957 TO DATE)  
      2 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L5  ANSWER 2 OF 6  REGISTRY  COPYRIGHT 2003 ACS  
RN  197099-62-0  REGISTRY  
CN  Protein E (Escherichia coli strain K12-MG1655 gene rmf) (9CI)  
     (CA INDEX NAME)

OTHER NAMES:

CN  Ribosome modulation factor (Escherichia coli O157:H7 strain EDL933  
     gene rmf)  
CN  Ribosome modulation factor (Escherichia coli strain O157:H7 gene  
     ECs1037)  
FS  PROTEIN SEQUENCE  
MF  C275 H448 N96 O78 S5  
CI  MAN  
SR  CA  
LC  STN Files:  CA, CAPLUS, TOXCENTER

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
      4 REFERENCES IN FILE CA (1957 TO DATE)  
      4 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L5  ANSWER 3 OF 6  REGISTRY  COPYRIGHT 2003 ACS  
RN  185652-41-9  REGISTRY  
CN  DNA (Escherichia coli strain K12-MG1655 gene b0948 plus gene b0949  
     plus gene pqiA plus gene pqiB plus gene b0952 plus gene rmf plus gene fabA  
     plus gene b0955 plus flanks) (9CI)  (CA INDEX NAME)

OTHER NAMES:

CN  GenBank AE000197  
CN  GenBank U00096 (Secondary GenBank Accession Number)  
FS  NUCLEIC ACID SEQUENCE  
MF  Unspecified  
CI  MAN  
SR  GenBank  
LC  STN Files:  CA, CAPLUS, GENBANK

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
      1 REFERENCES IN FILE CA (1957 TO DATE)  
      1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L5  ANSWER 4 OF 6  REGISTRY  COPYRIGHT 2003 ACS  
RN  182848-33-5  REGISTRY

CN DNA (Escherichia coli clone 222 gene pqiA plus gene pqiB plus gene  
rmf plus gene ompA plus gene sula plus flanks) (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Deoxyribonucleic acid (Escherichia coli clone 222 gene pqiA plus gene  
pqiB plus gene rmf plus gene ompA plus gene sula plus 5'- and 3'-flanking  
region fragment)  
OTHER NAMES:  
CN GenBank AB001340 (Secondary GenBank Accession Number)  
CN GenBank D90733  
FS NUCLEIC ACID SEQUENCE  
MF Unspecified  
CI MAN  
SR GenBank  
LC STN Files: CA, CAPLUS, GENBANK

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L5 ANSWER 5 OF 6 REGISTRY COPYRIGHT 2003 ACS  
RN 147277-65-4 REGISTRY  
CN Protein formation interference factor RMF (Escherichia coli clone pT6  
gene rmf) (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Ribosome modulation factor (Escherichia coli strain W3110 clone pT6  
gene rmf)  
FS PROTEIN SEQUENCE  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
2 REFERENCES IN FILE CA (1957 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L5 ANSWER 6 OF 6 REGISTRY COPYRIGHT 2003 ACS  
RN 147277-64-3 REGISTRY  
CN DNA (Escherichia coli clone pT6 gene rmf plus flanks) (9CI) (CA  
INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Deoxyribonucleic acid (Escherichia coli clone pT6 gene rmf plus 5'-  
and 3'-flanking region fragment)  
OTHER NAMES:  
CN DNA (Escherichia coli strain W3110 clone pT6 ribosome modulation  
factor gene rmf plus 5'- and 3'-flanking region fragment)  
CN GenBank S55660  
FS NUCLEIC ACID SEQUENCE; SECONDARY GENBANK ACCESSION NUMBER  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

=> d-i-11

L2 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:486245 HCAPLUS

DOCUMENT NUMBER: 137:62263

TITLE: Method for increasing Escherichia coli fermentation productivity

INVENTOR(S): Imaizumi, Akira; Usuda, Yoshihiro; Sugimoto, Shinichi

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Eur. Pat. Appl., 17 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:

MAIN: C12P013-08

SECONDARY: C12P021-00

CLASSIFICATION: 16-1 (Fermentation and Bioindustrial Chemistry)

Section cross-reference(s): 3

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1217076	A1	20020626	EP 2001-130740	20011221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001006255	A	20020820	BR 2001-6255	20011221
JP 2002306191	A2	20021022	JP 2001-389378	20011221
US 2002155556	A1	20021024	US 2001-23711	20011221
PRIORITY APPLN. INFO.:			JP 2000-390758	A 20001222

ABSTRACT:

A method is provided to improve the fermn. efficiency or prodn. rate of L-amino acids by Escherichia coli by site-directed disruption of the **rmf** gene.

SUPPL. TERM: Escherichia **rmf** gene fermn

INDEX TERM: Proteins

ROLE: REM (Removal or disposal); PROC (Process)  
(**RMF**; method for increasing Escherichia coli fermn. productivity)

INDEX TERM: Gene, microbial

ROLE: BSU (Biological study, unclassified); BIOL (Biological study)  
(for acid phosphatase; method for increasing Escherichia coli fermn. productivity)

INDEX TERM: Escherichia coli

Fermentation

Genetic engineering

Growth, microbial

Molecular cloning

(method for increasing Escherichia coli fermn. productivity)

INDEX TERM: Proteins

ROLE: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
(method for increasing Escherichia coli fermn. productivity)

INDEX TERM: Gene, microbial

ROLE: REM (Removal or disposal); PROC (Process)  
(**rmf**; method for increasing Escherichia coli fermn. productivity)

INDEX TERM: Mutagenesis

(site-directed; method for increasing Escherichia coli fermn. productivity)

INDEX TERM: 56-87-1P, L-Lys, preparation

ROLE: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
(method for increasing Escherichia coli fermn. productivity)

productivity)  
INDEX TERM: 9001-77-8, Acid phosphatase  
ROLE: BSU (Biological study, unclassified); BIOL (Biological study)  
(method for increasing Escherichia coli fermn. productivity)  
INDEX TERM: 439054-61-2, 1: PN: EP1217076 SEQID: 3 unclaimed DNA  
439054-62-3, 2: PN: EP1217076 SEQID: 4 unclaimed DNA  
439054-63-4, 3: PN: EP1217076 SEQID: 1 unclaimed DNA  
439054-64-5, 4: PN: EP1217076 SEQID: 2 unclaimed DNA  
ROLE: PRP (Properties)  
(unclaimed nucleotide sequence; method for increasing Escherichia coli fermn. productivity)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD.  
REFERENCE(S): (1) Chih-Hsiung, C; BIOTECHNOLOGY AND BIOENGINEERING 1996, V50(6), P636  
(2) Wada, A; JOURNAL OF BACTERIOLOGY 2000, V182(10), P2893 HCAPLUS